

1. A screening method for identifying a modulator of a biological process, the method comprising:
  - providing a test mixture from a biological process under conditions that support biological activity;
  - 5 adding a test compound to the test mixture; and
  - detecting a difference in the reaction heat rate in the presence of the compound compared to the reaction heat rate in the absence of the test compound, wherein the difference is indicative that the test compound modulates the activity of the biological process.
- 10 2. The method of claim 1 wherein the biological process is transcription or translation.
3. The method of claim 1 wherein the biological process is selected from the group consisting of bacterial cell wall biosynthesis, DNA replication, protein degradation, and protein secretion.
- 15 4. A screening method for identifying a modulator of a biological process, the method comprising:
  - providing a test mixture from a biological process and a control;
  - adding a test compound to the test mixture;
  - 20 equilibrating heat between the test mixture and the control;
  - initiating a reaction in the test mixture and the control; and
  - detecting a difference in the reaction heat rate between the test mixture and control, wherein the difference is indicative that the test compound modulates the activity of the biological process.
- 25 5. The method of claim 4 wherein the biological process is transcription or translation.
6. The method of claim 4 wherein the biological process is selected from the group consisting of bacterial cell wall biosynthesis, DNA replication, protein degradation, and
- 30 protein secretion.
7. A screening method for identifying a modulator of a biological process, the method comprising:

- providing a test mixture from a biological process under conditions that promote activity and a control;  
equilibrating heat between the test mixture and the control;  
adding a test compound to the test mixture; and  
5 detecting a difference in the reaction heat rate in the presence of the compound compared to the reaction heat rate in the absence of the test compound, wherein the difference is indicative that the test compound modulates the activity of the biological process.
8. The method of claim 7 wherein the biological process is transcription or translation.
- 10 9. The method of claim 7 wherein the biological process is selected from the group consisting of bacterial cell wall biosynthesis, DNA replication, protein degradation, and protein secretion.
- 15 10. A screening method for identifying a test compound that modulates the activity of a biomolecule, the method comprising:  
providing a test mixture comprising a biomolecule under conditions that support the activity of the biomolecule;  
adding a test compound to the test mixture; and  
20 detecting a difference in the reaction heat rate in the presence of the compound compared to the reaction heat rate in the absence of the test compound, wherein the difference is indicative that the test compound modulates the activity of the biomolecule.
- 25 11. The method of claim 10 wherein the biomolecule is selected from the group consisting of a protein, an oligonucleotide, a DNA or RNA polynucleotide, carbohydrate, and a lipid.
12. The method of claim 11 wherein the protein is an enzyme or a polypeptide.
13. The method of claim 12 wherein the enzyme is from a prokaryote, a eukaryote, a virus  
30 or a fungus.
14. The method of claim 12 wherein the enzyme is a topoisomerase.

15. The method of claim 12 wherein the enzyme is from a bacterium.
16. The method of claim 15 wherein the enzyme is DNA gyrase and topoisomerase IV.
- 5 17. The method of claim 12 wherein the enzyme is selected from the group consisting of oxidases/reductases, kinases, ligases, and phosphatases.
18. The method of claim 12 wherein the enzyme is MurB, MurC or DNA ligase.
- 10 19. The method of claim 12, wherein the enzyme is involved in cell wall biosynthesis and transmembrane signaling, translation, transcription, replication, protein secretion, or cofactor biosynthesis.
20. A screening method for identifying a compound that modulates the activity of a  
15 biomolecule, the method comprising:  
    providing a test mixture comprising a biomolecule and a control;  
    adding a test compound to the test mixture;  
    equilibrating heat between the test mixture and the control;  
    initiating a reaction in the test mixture; and  
20      detecting a difference in the reaction heat rate between the test mixture and control,  
wherein the difference is indicative that the test compound modulates the activity of the biomolecule.
21. The method of claim 20 wherein the biomolecule is selected from the group consisting  
25 of a protein, an oligonucleotide, a DNA or RNA polynucleotide, or a lipid.
22. The method of claim 21 wherein the protein is an enzyme or a polypeptide.
23. A screening method for identifying a compound that modulates the activity of a  
30 biomolecule, the method comprising:  
    providing (i) a test mixture comprising a biomolecule under conditions that promote the activity of the biomolecule and (ii) a control;  
    equilibrating heat between the test mixture and the control;

adding a test compound to the test mixture; and  
detecting a difference in the reaction heat rate in the presence of the compound  
compared to the reaction heat rate in the absence of the test compound, wherein the difference  
is indicative that the test compound modulates the activity of the biomolecule.

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24. The method of claim 23 wherein the biomolecule is selected from the group consisting  
of a protein, an oligonucleotide, a DNA or RNA polynucleotide, or a lipid.

25. The method of claim 24 wherein the protein is an enzyme or a polypeptide.

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